" THE EFFECTIVENESS OF MAILTLAND MANIPULATION WITH CONVENTIONAL PHYSIOTHERAPY FOR THE MANAGEMENT OF ATHLETES WITH ATHLETIC PUBALGIA"

A Dissertation submitted to

THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY

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In partial fulfillment of requirements for the award of the

MASTER OF PHYSIOTHERAPY

(**SPORTS PHYSIOTHERAPY**)

DEGREE

Submitted by

Reg. No: 27092010

NANDHA COLLEGE OF PHYSIOTHERAPY

ERODE - 638052.

APRIL 2011.

THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY

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CERTIFICATE

This is to certify that this dissertation entitled **"THE EFFECTIVENESS OF MAILTLAND MANIPULATION WITH CONVENTIONAL PHYSIOTHERAPY FOR THE MANAGEMENT OF ATHLETES WITH ATHLETIC PUBALGIA"** has been done by **Register No: 27092010** in partial fulfillment of the requirement for the degree of **MASTER OF PHYSIOTHERAPY, April 2011.**

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Date :

Prof. L.Gladson Jose, M.P.T., M.Sc., M.Phil., D.T.Ed.,

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CERTIFICATE BY THE HEAD OF THE INSTITUTION

This is to certify that **(Reg. No. 27092010)** is a bonafide student of **Nandha College of Physiotherapy,** studying **Master of Physiotherapy (Sports Physiotherapy)** degree course from the year 2009-2011.The dissertation entitled **"THE EFFECTIVENESS OF MAILTLAND MANIPULATION WITH CONVENTIONAL PHYSIOTHERAPY FOR THE MANAGEMENT OF ATHLETES WITH ATHLETIC PUBALGIA"** is a record of original and independent work done by her under the guidance of me and **Mr. R. Manikandan M.P.T., Assistant Professor.**

I wish him a great success in his dissertation work.

Place : Erode. Principal/Head of the Institution

Date : (**Prof. L. GLADSON JOSE)**

Mr. R . Manikandan M.P.T.,

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Erode – 52.

CERTIFICATE BY THE GUIDE

This is to certify that the dissertation entitled **"THE EFFECTIVENESS OF MAILTLAND MANIPULATION WITH CONVENTIONAL PHYSIOTHERAPY FOR THE MANAGEMENT OF ATHLETES WITH ATHLETIC PUBALGIA"** submitted by **(Reg No. 27092010)** is a record of original and independent work done by the candidate during the period of study under my supervision and guidance. The dissertation represents entirely an independent work on the part of the candidate but for the general guidance by me.

Place : Erode. Guide

Date : **(R.Manikandan M.P.T.)**

DECLARATION

I hereby declare and present my project work entitled **"THE EFFECTIVENESS OF MAILTLAND MANIPULATION WITH CONVENTIONAL PHYSIOTHERAPY FOR THE MANAGEMENT OF ATHLETES WITH ATHLETIC PUBALGIA"** is outcome of original research work was undertaken and carried out by me under the guidance of **Mr. R. Manikandan M.P.T.,** Associate Professor, Nandha College of Physiotherapy, Erode – 52.

To the best of my knowledge this dissertation has not been formed in any other basis for the award of any other Degree, Diploma, Associationship, Fellowship, previously from any other Medical University.

Register No:

27092010

ACKNOWLEDGEMENT

I am thankful to my **PARENTS** and **BROTHER** who were my inspiration and whose constant encouragement and selfless care have made me a therapist today.

I thank **GOD** almighty who laid the foundation for knowledge and wisdom and who has always been in his source of strength and inspiration and who guide me throughout.

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Last but not least, I thank all the subjects who participated in this study for their cooperation and patience shown towards me to complete my dissertation.

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1. INTRODUCTION

Athletic pubalgia is estimated that 5% to 18% of athletes present to their physician with activity-restricting groin pain. Groin pain is particularly common in sports that require athletes to perform repetitive kicking, twisting, or turning at high speeds, such as soccer, football, basketball, track and .eld, tennis, and hockey., Defined as a weakness of the posterior inguinal wall without clinically palpable hernia, the hallmark symptom of a sports hernia is severe lower , the hallmark symptom of a sports hernia is severe lower abdominal, pubic, or groin pain with exertion. sports hernia results from injury to muscular and/or fascial attachments to the anterior pubis, there is disagreement as to the exact anatomical area of disruption. Tears associated with an athletic pubalgia may involve any or all of the following: the transversalis fascia at the posterior inguinal wall, the insertion of the distal rectus abdominis, the conjoined tendon at its distal attachment to the anterior-superior pubis, and/or the external oblique aponeurosis. Although some believe that an athletic pubalgia involves the rectus abdominis tearing near its distal insertion, operative reports .nd that only 6% to 8% of patients undergoing repair for a sports hernia have an isolated tear to the rectus abdominis.

Operative exploration often reveals multiple defect sites in the aforementioned structures, resulting in subtle weakness to the posterior inguinal wall, inferring that the pain related to athletic pubalgia may be secondary to injury of these structures in isolation, or in addition to an injury to the rectus abdominis muscle. Athletic pubalgia has been reported in high-performance recreational, high school, and collegiate athletes, The higher reported incidence of this condition in males versus females may be explained by a greater level of participation in highly competitive sports and/orgender differences in pelvic anatomy. Further evaluation of female athletes often reveals a gynecological source to their symptoms, including endometriosis and ovarian cysts.

I AM GOING TO DISCUSS ABOUT THE EFFECTIVENES OF maitland manipulation therapy with conservative physiotherapy treatment IN PATIENTS WITH athletic pubalgia

STATEMENT OF THE PROBLEM :

study on Analyzing the effectiveness of maitland manipulation with conservative physiotherapy to improving athletic performance in athletic pubalgia patients.

NEED FOR THE STUDY :

The atheletes needs highly speed and strength throughout the event ,maitland manipulation therapy with concervative physiotherapy has been shown to be one of the most effective methods for improving athletic performance .Here I have incorporated the effectiveness of maitland manipulation therapy to improve the athletic performance in athletes..

Through this study I would like to find out the effectiveness maitland manipulation with conservative physiotherapy to improving athletic performance in athlete with athletic pubalgia. .

AIM OF THE STUDY :

- An experiment of the effectiveness maitland manipulation therapy with conservative physiotherapy for the management of athlets with athletic pubalgia

OBJECTIVES OF THE STUDY:

- To analyze the effectiveness of maitland manipulation therapy with conservative physiotherapy for the management of athelet with athletic pubalgia

HYPOTHESIS:

- This study is hypothesized that Maitland manipulation with conservative Physiotherapy will be more effective for the management of athlete with athletic pubalgia.

NULL HYPOTHESIS:

- There is no significant difference in the effect of maitland manipulation therapy with conservative physiotherapy treatment in improving athletic performance for athletes.

ALTERNATE HYPOTHESIS:

- There is significant difference in the effect of maitland manipulation with conservative physiotherapy in improving athletic performance for athletes.

OPERATIONAL DEFINITIONS

ATHLETIC PUBALGIA

Athletic pubalgia defined as a weakness of the posterior inguinal wall without a clinically palpable hernia, the hallmark symptom of a sports hernia is severe lower abdominal pain with exertion.

By Jonathan clute MD, Mar 23,2009

MAITLAND MANIPULATION

Manipulation is broadely defined as all procedures in which the hands are used to mobilize , adjust. apply, mechanical traction, massage, stimulate, or otherwise influence the spine and near by (para spinal)tissues with the goal of positively influencing the patients health

G.D.MAITLAND

.

REVIEW 0F LITERATURE

1.Astle cooper in 180

a hernia is a abnormal bulge of the abdominal or pelvic wall ,A sports hernia differs from a regular hernia only in regards to itsunderlying causes, routine hernias can be associated with obesity, heavy lifting, but sports hernia are related to intense rxertion during sports.

2.BW koel,WJJ assendeflt, GJMG Vander Heiden, Lm Bouter, PG knipschil

A sports hernia is differ from from other type of hernias it can be treated through physicaltherapy treatement.

3.Dr.Lo Menzo, Universioty of Maryland hernia centre,

a sports hernia is type of small inguinal hernia in which the muscles of the abdominal wall weaken or tear and cause pain in groin area, athletes engaging in repeated twisting and turning motions all the most susceptible to this type of hernia. It is most common among soccer, ice hockey, and foot ball playersas well as runners.

4.Kyle Anderson MD, Sabrina M, Strick land MD, and Russels Warden,MD Hendry ford health system Defroit,Michigan.

Athletic injuries about the hip and groin occur less commonly than injuries in the exeremities, they can results in extensive rehabilitation time.

5.Dr,William H, Brown

A sportas hernia is tear to the oblique abdominal muscles , the sports hernia does not produce hole in the abdominal wall . there is no visible bulge under the skin.

6.Sheven m.Cohen Mar 2008

Sports hernia are new recognized as a significant cause of abdominal wall pain in athletes.

7.Sydney sports physiotherapy clinic

The physiotherapy treatment can cure the sports hernia condition the treatment include the strengthing exercisers and stretching of the lower abdominal muscle groub.

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Anatomic basis of chronic groin pain with special reference to sports hernia can able to treat effectively by maitland manipulation therapy.

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Athletes with chronic groin pain can able to treated by physical therapy treatment.

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The use of a lumbar spine manipulation technique by physical therapists in patients with athletic pubalgia.

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Spinal manipulation and mobilization for low back pain and groin pain is more effective.

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Use of lumbosacral region manipulation and therapeutic exercises for a patient with a lumbosacral transitional vertebra and low back pain

14. Holm I, Bolstad B, Lutken T, Ervik A, Rokkum M, Steen H.

Reliability of goniometric measurements and visual estimates of hip ROM in patients with athletic pubalgia.

15. Flynn TW, Fritz JM, Wainner RS, Whitman JM.

The audible pop is not necessary for successful spinal high-velocity thrust manipulation inindividuals with athletic pubalgia.

MATERIALS AND METHODOLOGY

MATERIALS USED

- Treatment Coutch
- Assesment Chart
- Pillow
- Vas
- Goniometry

METHODOLOGY :

RESEARCH DESIGN :

The design that is used for this study is Quasi experimental design.

STUDY SETTING :

The entitled study was conducted at

- Therapeutic gymnasium, Nandha colege of physiotherapy, Erode.
- Erode sports club, Erode.

The subjects for this study were volunteers of the college students of the nandha group of institutions.

SAMPLE & SAMPLING METHOD :

The subject was selected based upon the purposive random sampling technique, sample of 20 patients were taken.

STUDY DURATION :

The study was carried out for a period of 8 weeks of duration and each patient was trained according to which group he /she belong in this study.

CRITERIA FOR SELECTION :

INCLUSIVE CRITERIA

- Patient Diagnosed As Athletic Pubalgia
- Age group 17-25
- Patient in acute stage
- Both sex are included
- Patient willingness to participate the study

- **EXCLUSIVE CRITERIA**

  Palpable inguinal hernia
- Any medical red flag signs and symptoms.
- Lumbar radiculopathy
- Prior surgery to the pelvic or lumbar regions

POPULATION:

All the athletic pubalgia patients who fulfill the selection criteria are considered as population of the study.

VARIABLES OF THE STUDY:

INDEPENDENT VARIABLE:

- Maitland manipulation therapy.

DEPENDENT VARIABLE:

- Pain
- functional activities

PROCEDURE : Maitland Manipulation and Mobilization

TECHNIQUE

Posterior ilium rotation mobilization:

- Patient side lying, facing therapist hip and knee at 60 -90

  Bottom hand makes contact over ischial tuberosity ;top hand makes contact over ASIS
- Force ;2 parallel forces with both hands to impact a torque or posterior rotation to the innominate
- Can step in between patient's lower extremities and have patient perform isometric hip extension x 10s , while therapist rests between mobilizations.
- After mobilization session done , do 2 sets of hold –relax(2-s hold , moderate contraction in to ipsilateral hip extension ,contra lateral hip flexion ,then adduction)

Anterior ilium rotation mobilization

- Patient prone
- Therapist stand on contralateral side of ilium to be mobilized, can have patient drop ipsilateral lower exetremity off plinth
- Bottam hand graps anterior distal thigh (knee flexed or extended),bring hip in to extenson.
- Contact with ulnar aspect of heel of hand over posterior ilium imparting a torque to induce anterior rotation of the innominate.
- Can have patient perform isometric hip flexion x 10s , while therapist rests between mobilization sets
- After mobilization session done , do 2 sets of hold- relax (2-hold,moderate contraction in to isilateral hip flexion ,contralateral hip extension , then adduction .

Sacro iliac regional thrust manipulation technique

- Position the patient supine with ilium to be mobilized on opposite side of table.
- Passively side bend patient toward side to be treated
- Therapist hooks cephaled elbow (right elbow)inside patient right elbow by threading arm through patients clasped hand and stabilizing dorsum of hand against the patient ribcage.

- Therapist places heel of caudal hand at the ASIS
- While maintaining side bent position , flex the patient lumbar spine , while simultaneously rotating the individual towards you until the ASIS raises up of the table about 2.5 cm
- Ask the patient to take a deep breath and, upon exhalation, take the available motion and perform a quick thrust at the ASIS in a posterior/ inferior direction.
- After mobilization completed have patient perform isometric adduction with your fist between patient's knees to "set" pubic symphysis

Hip anterior glide mobilization

- Position patient prone
- Stabilizing hand grasps anterior, distal femur, positioning hip in neutral position knee 90.
- Mobilize hand contact posterior, proximal femur Exert anterior force

Hip posterior glide mobilization

- Place cephaled hand underneath ishchium (or can use wedge) to stabilize
- Position hip in 90 flexion, 10adduction
- Caudal hand contacts patella, exerting posterior force through long axis of femur can use sternum for more contact/ pressure

Lumbar central pa mobilization

- Contacts spinous process with pisiform/ hyphothenar eminence of cephaled(mobilizing) hand or can use thumb or dummy thumb technique directly over spinous process

PROTOCAL :

Each mobilization /manipulation was applied for 30 sec at the rate of approximately 1 mobilization every 1 to 2 seconds , followed by a 30 seconds rest. All manipulation were performed for 3 sets of 30 reputations and were terminated when the patient was believed to have normal accessory motion.

NEUROMUSCULAR REEDUCATION AND STRETCHIG TECHNIQUE

After performing pelvis or hip mobilization and manipulation , neuro muscular reeducation and manual stretching techniques were utilized to assist in maintaining capsular mobility. An anterior rotation mobilization or manipulation of the pelvis was followed by a sequence of submaximal isometric hip adduction , hip abduction , ipsilaterl hip flexion or contra lateral hip extension ,and ending with hip adduction.

SOFT TISSUE MOBILIZATION TECHNIQUE

This include efflurage and petrisage, were used sparingly as needed to address muscular tightness in the superficial posterior, superior, and lateral pelvic musculature and fascia. But were not utilized in the anterior abdominals, adductor insertion sites, and inguinal musculature , to avoid potentially compromising vulnerable tissue.

DATA PRESENTATION AND ANALYSIS

STATISTICAL TOOLS

For this pre and post test experimental study, paired ‘t’ tests were used. Paired ‘t’ test was used for each parameter in an intra-group analysis to find out the significance of improvement achieved through intervention.

The statistical tests were performed by using the following formula.

Mean $X = \sum \bar{X} / n$

x = Sum of observation

n= Number of observation

To compare the effects between two groups students ‘t’ test for paired values.

$$t = \frac{\bar{d}}{s} x \sqrt{n}$$

d = Mean difference (M.D)

S = Standard deviation (S.D)

n = Number of observation

TABLE - I

PRE AND POST MEAN DIFFERENCE VALUES FOR VAS

VISUAL ANALOG SCALE		
MEAN DIFFERENCE VALUES	PRE TEST VALUES	POST TEST VALUES
	6.9	1.9

FIGURE-1

GRAPHICAL RESPRESPENTATION OF COMPARISION MEAN DIFFERENCE OF PRE AND POST TEST VALUES FOR VAS

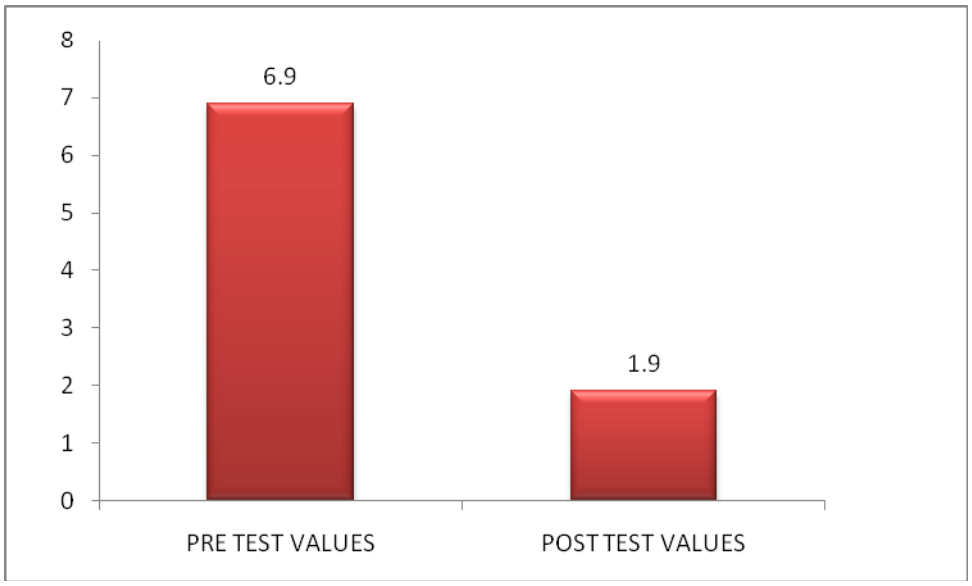


TABLE - II

PRE AND POST MEAN DIFFERENCE VALUES FOR GONIOMETRE

GONIOMETRE		
MEAN DIFFERENCE VALUES	**PRE TEST VALUES**	**POST TEST VALUES**
	12.05	21.55

FIGURE- 2

GRAPHICAL RESPRESPENTATION OF COMPARISION MEAN DIFFERENCE OF PRE AND POST TEST VALUES FOR GONIOMETRE

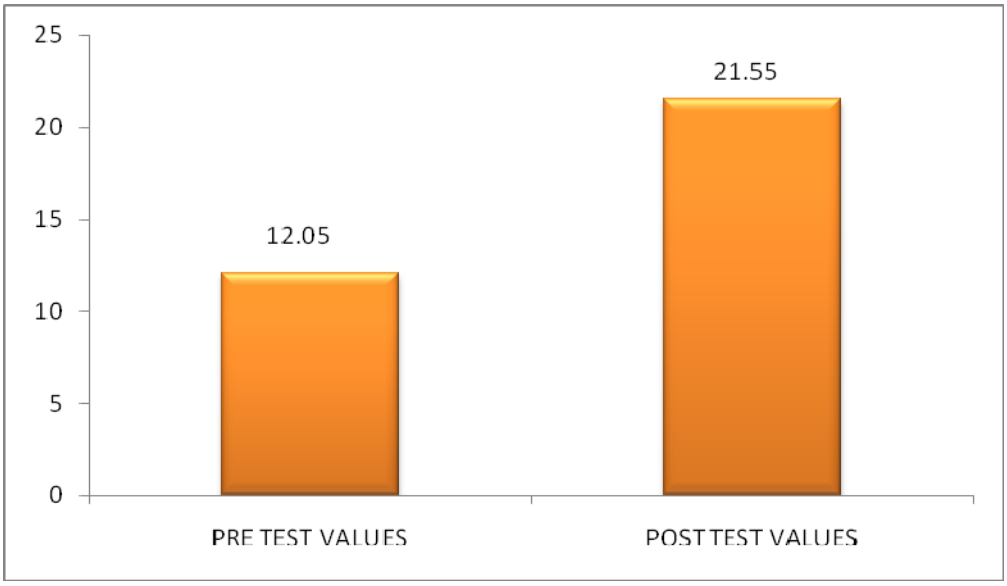


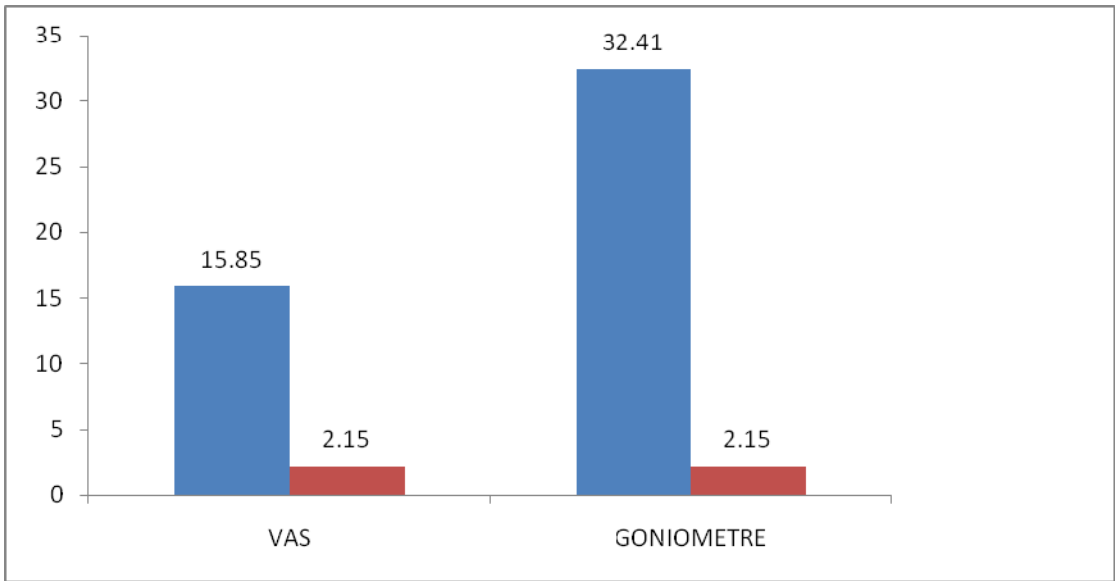
TABLE - III

PAIRED “t” TEST VALUES FOR VAS AND GONIOMETRE

SCALE	CALCULATED PAIRAD “t” TEST VALUES	TABLE VALUES	SIGNIFICANCE
VAS	15.85	2.15	SIGNIFICANCE
GONIOMETRE	32.41	2.15	SIGNIFICANCE

FIGURE- 3

GRAPHICAL RESPRESPENTATION OF COMPARISION OF TABLE VALUE WITH PAIRED “t” TEST VALUES FOR VAS AND GONIOMETRE



RESULTS AND DISCUSSION

Result:

The pre and post test value were assessed for pain and range of motion. The “t” values were calculated for pain and range of motion. The paired “t” test were 32.41 and 15.85 respectively and they were more than table value 2.15 for 5% level of significance at 19 degrees of freedom.

The paired “t” test values have shown that Maitland manipulation with conventional physiotherapy war more effective than conventional physiotherapy for athletic pubalgia.

5.2 DISCUSSION

Sports hernia is not visible, cannot be palpated, and often Cannot be conformed by imaging, the practitioner should perform a careful and Thorough examination, screen for other possible injuries and conditions, then proceed with rehabilitation with little guidance based on research evidence. When determining the etiology of groin pain, an important question is the intensity and location of the patient’s symptoms. Pain without exertion should be further evaluated for potential systemic pathology. Complaints of testicular or epididymal pain, or cyclic pain accompanying

menstruation, should be examined carefully to rule out genitourinary abnormalities. Neurological

symptoms in the groin or upper scrotum may suggest entrapment of the genital branches of the ilioinguinal, obturator, or genito femoral nerves.

Adductor involvement is common in patients with athletic pubalgia, case series presented with a physician diagnosis and/or imaging conformation of an adductor strain. The finding that adductor pain often improves after sports hernia repair suggests that adductor tendonitis may be a secondary phenomenon to the initial injury. Conceptually, if the rectus abdominis tendon is torn or weak in comparison to strong adductors, the pelvis may tilt anteriorly, leading to increased pressure directly over the adductor compartment. Osteitis pubis is another diagnosis presenting very similar to an adductor strain and sports hernia.

LIMITATIONS AND RECOMMENDATIONS

RECOMMENDATION

1. A similar ‘Study may be extended with larger sample
2. Further studies may be extended with subjects above the age group of 40 years.
3. A similar study may be extended to conservatively treated subjects.

LIMITATIONS

- Subjects prone for bias.
- Small Group study.
- Subject activities can`t be controlled.
- Certain factors like nutrition , testing conditions, medication, and climatic condition are not controlled.

CONCLUSION

From the results of this study, though regular physiotherapy shows improvement in pain and range of motion.

Based on ‘t’ values, it could be seen that there is significant difference between calculated values and table values. Its shows greater significance with more effects in Maitland Manipulation with conventional Physiotheraphy.

Through the results, null hypothesis is rejected and alternate hypothesis is accepted and the study could be concluded that There is significant difference in effectiveness of Maitland Manipulation with conventional Physiotheraphy in Athletic pubalgia patients.

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APPENDIX

VISUAL ANALOGUE SCALE [VAS]

VAS is used to measure the severity of pain response that patients experience immediately after the completion of treatment. It consist of 10cm horizontal line, with two ends labeled as on pain[0] mark a print on the line, which corresponds to the severity of pain patient experience.

The distance in centimeters from the zero level in visual analogue scale to the level marked by the patient was measured as a numerical index of the severity of pain.

GONIOMETRY

It is the device used to assess the range of motion in the joints. In hip joint normal hip extension range is 25 to 30 degree.

MAITLAND MANIPULATION

Maitland spinal manipulation ı commonly used technique for those with simple Back and Neck pain. It is used to treat areas of spinal segmental dysfunction where there are symptoms of painful muscle spasm and restricted spinal movements. In trained hands it is a safe, effective and comfortable treatment. It may be also used in those with certain types of Spinal Nerve Root Pain. Such technique is often gentle. Always small in range and rarely forceful **– G.D.MAILAND**

It involves encouraging the ‘stiff area of the spine to being working again. It comprises soft tissue massage, gentle mobilization movements (articulation), and firmer carefully controlled movements (high velocity low amplitude thrusts –HVT`S) which stretch the stiff part often accompanied by a series of ‘clicks and pops’.

Each ‘clicks and pops’ represents a spinal facet joint being released from its restricted state. This often results in a very rapid reduction in spinal muscle spasm and pain, accompanied by a noticeable increase in the range of spinal movements. Manipulation combined with regular specific exercises seems to the most successful at maintaining the mobility of a previously stiff area.

A GRADED DOSAGE OF MANIPULATION

GRADE-1

Small amplitude rhythmic oscillations are performed at the beginning of the range.

GRADE-2

Large amplitude rhythmic oscillations are performed within the rage, not reaching the limit.

GRADE-3

Large amplitude rhythmic oscillations are performed up to the limit of available motion and are stressed into the tissue resistance.

GRADE-4

Small amplitude rhythmic oscillations are performed up to the limit of available motion and are stressed into tissue resistance.

GRADE-5

Small amplitude, high velocity thrust technique is performed to snap adhesions at the limit of the available motion.

ASSESMENT CHART

NAME:

AGE:

SEX:

ADRESS:

OCCUPATION:

SIDE AFFECTED:

PAIN ASSESMENT:

A) PAIN AT REST: Y/N

B) PAIN PRESENT ONLY IN GROIN AREA: Y/N

C) PAIN WHILE PERFORMING HIP MOVEMENTS: Y/N

D) DOES PAIN LIMIT YOUR ACTIVITIES: Y/N

E) DO YOU FEEL PAIN WHILE STRETCHING YOUR ABDOMINAL MUSCLES/FASCIA: Y/N

OBSERVATION GRAPH

S.No	Sex	VAS score		GONIOMETRY SCORE	
		Pre test	Post test	Pre test	Post test
1	M	8	3	0-7	0-17
2	M	6	2	0-8	0-18
3	M	8	3	0-12	0-20
4	M	7	2	0-15	0-25
5	M	7	2	0-9	0-19
6	M	7	1	0-6	0-18
7	M	5	1	0-18	0-25
8	M	8	2	0-15	0-25
9	M	8	2	0-13	0-23
10	M	9	1	0-12	0-22
11	M	8	1	0-14	0-23
12	M	6	2	0-11	0-21
13	M	8	1	0-10	0-20
14	M	5	1	0-15	0-25
15	M	6	2	0-16	0-24
16	M	7	2	0-7	0-17
17	M	6	3	0-8	0-18
18	M	8	2	0-12	0-22
19	M	5	2	0-15	0-25
20	M	6	3	0-18	0-24